

# **VEHICLE LEAN AND ALIGNMENT CONTROL SYSTEM**

## **ABSTRACT OF THE DISCLOSURE**

A frame and suspension for a vehicle provides automatic lean and alignment. The lean is determined by force sensors, the speed and/or the angle of turn and is provided by actuators in the suspension in accordance with a predetermined protocol in an electronic control unit (ECU). The protocol also provides shock absorption by rapidly tracking a contour of a surface on which the vehicle rides. The suspension is provided by a plurality of arm assemblies each including a lower arm, an upper control arm, and an actuator movably connected to the lower arm and to the upper control arm. The arm assemblies are pivotally connected to the frame on a common axis. The arm assemblies generally form parallelograms and are actuated in concert to remain generally parallel to each other through a range of angles to adjust the lean of the vehicle. The arm assemblies are also actuated independently of each other to accommodate variations in the contour. In one aspect, an actuator controlled by an ECU can be replaced by a mechanical actuator that can be activated manually such as by a driver's own leaning weight.